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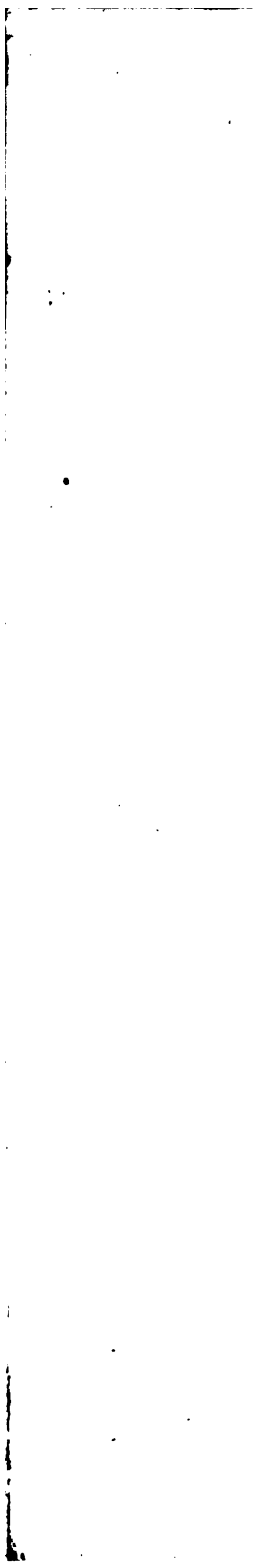
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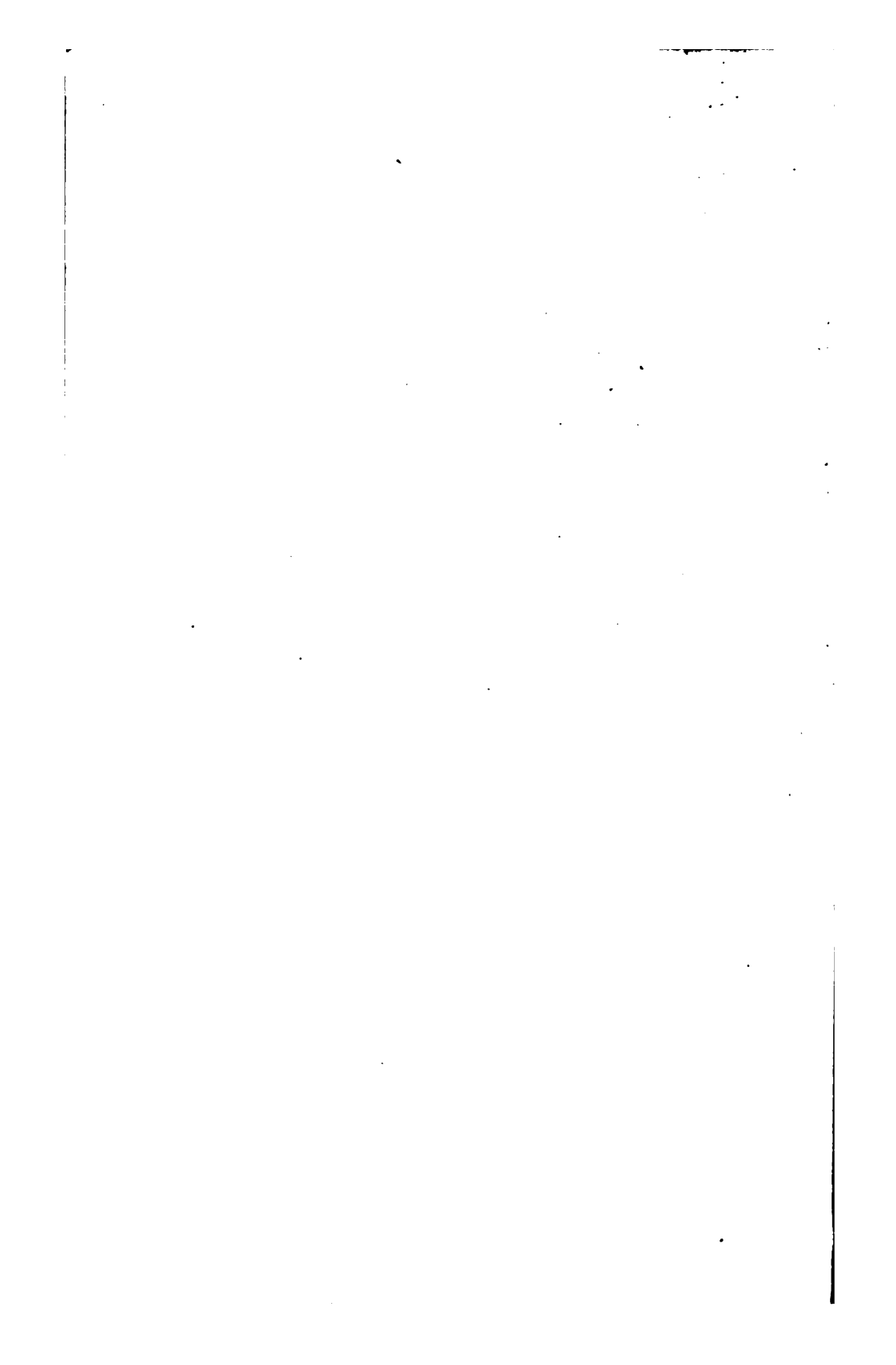




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THE ART
OF
MAKING AND MENDING FISHING NETS.



THE
ART OF NETTING;

WITH THE METHOD
OF
MAKING AND MENDING FISHING NETS
PRACTICALLY EXPLAINED;
AND ILLUSTRATED WITH ETCHINGS.

BY S. F. EVERY, Esq.



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CHAPTER I.

INTRODUCTION.

It is somewhat singular, that whilst the press is overflowing with books, giving information upon every other subject, there has not been any work upon the art of netting, and net-making ; by the study of which, a person may be able to make any species of net required. Daniel, in his Rural Sports, states a few particulars ; but they are only calculated to assist those persons who have already some knowledge of the art ; and the rules he lays down, are far from agreeing with those in general use amongst fishermen.

Having had much experience, not only in making and mending, but also in the use of all sorts of nets ; and feeling how valuable a book upon the subject would have been to myself some five-

and-twenty years ago, I am induced to lay before the public the result of my practice, in the hope that the work may be useful, both to the amateur, and also to those who are in a station of life, in which such knowledge is of value to them in a pecuniary point of view.

Many gamekeepers are perfectly ignorant of the art, and spoil good nets, by their clumsy way of patching them up when repairs are necessary.

In the following pages, it will be my endeavour to give such information as will enable any person to make the nets described, so as to be suitable for the places where they are to be used, (for what is a good net in one situation is not useful in all, as will be explained hereafter); and also to make them with greater ease and rapidity, than most of those who now practise the art.

The increase of speed referred to, is obtained by a peculiar method of holding the mesh, which is not generally known. This I shall endeavour to put before my readers in as clear a point of view as possible, being well convinced of its importance. Before learning the method alluded to, I had made many nets, and was as quick as most people at the work; but when perfectly master of the new way, (which at first appeared

awkward to me), I found my speed increased three or four hundred knots an hour.

It may perhaps be as well to begin by describing the proper form for meshes and needles ; to make which more clear, a figure of each is given. No. 1, plate I., represents the form of a needle calculated for making trammels and dragnets, having meshes sufficiently large to allow of its free passage through them : the length should not be less than twelve inches, which is more than would be convenient in the old and more common system of netting ; but the advantages gained by additional length are very apparent. In the first place, a greater quantity of string is contained, without materially adding to its bulk, and making it clumsy to hold, as well as liable to catch on the edges of the mesh in passing through. It is also necessary to give a better opportunity for catching it, after it has past through the mesh, or nearly so ; a short needle would be thrown quite through, and liable to fall on the other side, which would cause delay. In the old method this fault does not exist ; there is little danger of a needle being thrown too far through the confined space between the thumb and first finger, which support the mesh. No. 2 represents a shorter needle, proper for gearing and mending nets, when it is frequently necessary to turn them about in a short

space, which would render a long one very inconvenient ; these should seldom exceed six or eight inches in length.

Iron needles, open at both ends, are occasionally useful for making the walling of trammels, as a greater quantity of string may be put upon them at a time, by which the number of joining knots will be diminished, a circumstance worthy of attention, as they are always more or less liable to catch in the sheeting, or loose small-meshed net.

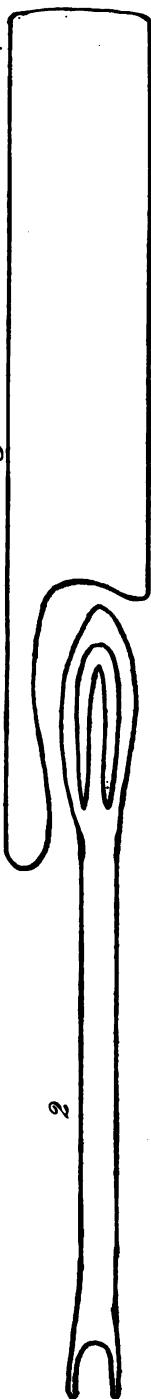
The common method of forming a mesh is to have the same width from end to end, if flat, and if round, they are like rulers ; these are very inconvenient to hold, when their diameter exceeds three quarters of an inch : the proper form is represented by Fig. 3 ; about four inches on the broad part, and two and a half in the handle.

Ivory meshes are very pleasant to work upon, their smoothness causing great facility in drawing the net from them ; and the extreme hardness of the material prevents the possibility of any indentations being made by the string ; a circumstance which, with wooden meshes, excepting those of box and other very hard wood, is sometimes annoying. The advantage to be gained by this form of mesh is, its giving an opening for the second finger to pass into, leaving the other fingers at perfect liberty.

No 1.



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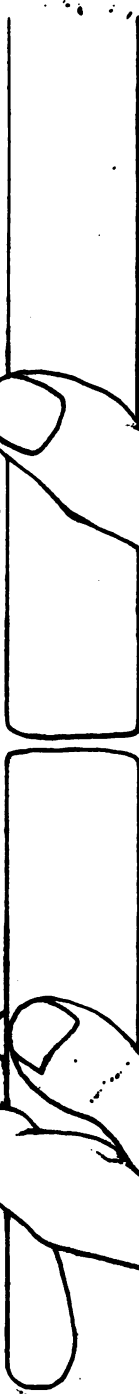
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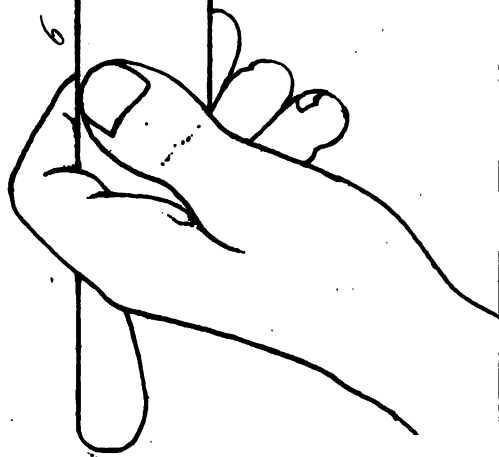


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Before speaking of the use of these meshes, the form of a mesh for making walling for trammels must be explained. This is from eight to twenty inches long ; upon the side which is to hold the string, two inches wide ; and about three inches longer at each end on the other side, which projection prevents the string from slipping off. See Fig. 4 ; also an iron needle, Fig. 5. In netting walling upon these, the knot is formed differently from the other netting, the first part of the motion being to pass the needle through the adjoining mesh or loop, and give a pull to tighten the string, and get it well round the mesh, bringing the mesh just taken, up close, to be held from slipping by the thumb and first finger, in which position it remains, till the needle has been past across to the left, and then in a circle to the right, passing under the mesh taken, from whence it is pulled tight, forming the knot. The above will, I feel aware, be rather unintelligible at first ; but by trying it over, and reading at the same time, any person will be able to succeed in forming the knot.

It is a very easy thing to net, when shown the method by any one who is expert at the practice of the art ; but by no means easy to write an account of the different movements, in such a way, that beginners may be enabled to execute

what they wish, from simply reading a description of the right method.

The material used, that is to say the string, is of great importance ; and as far as my experience goes, the Italian hemp surpasses anything in the duration of its wear, always excepting silk, of which substance all nets should be made that are likely to fall into the hands of persons, who will be careful in the use of them, and put them away clean.

Netting string should be made with many strands, or threads, by which the strength is increased ; and it should never be much twisted, which causes great difficulty in netting, and liability to break, as well as a tendency to decay, from the exclusion of a proper circulation of air.

It frequently happens that string is over-twisted, in which case there is great advantage gained by running it out, and walking some distance with it, backwards and forwards, before use.

It is a common practice to apply size to give a smoothness and glossy appearance to string, but this renders it hard to work, and liable to swell when wet.

CHAPTER II.

HOLDING THE MESH, AND MAKING THE KNOT.

THERE is nothing which tends so much to swiftness in the art of netting, as a proper and loose, or easy way of holding the mesh ; this will be best understood by an examination of Fig. 6, plate I., which gives the true position of the fingers at the commencement of the stitch : it is a method not generally known, but by far the best, giving such perfect freedom to the hand, and so open a space for the needle to pass through.

It is convenient to hold the mesh at an angle of forty-five degrees ; indeed that is the natural position, when the fingers are properly placed.

It will be evident, upon an inspection of the Fig., that the thumb and first finger hold the mesh, leaving the three remaining fingers perfectly at liberty to stretch out, and hold up the next mesh or loop to be taken, besides drawing back to free themselves from the string, at the proper moment, during the operation of forming the knot. My speed has been increased three or four hundred knots per hour, by adopting this method of holding the mesh. In netting with fine string upon a mesh about an inch in diameter, which is the most favourable size for speed, I now average about thirteen hundred knots per hour: the greatest number I ever effected in the above time being seventeen hundred and fifty, all circumstances of course favourable; this will be found as much beyond the common method as before stated.

Fig. 7 represents the common method of holding the mesh, which is introduced simply to shew the difference, and how inconvenient it is to pass the needle between the mesh and forefinger, where there cannot be any open space to admit of the needle being thrown through, as it should be: in addition to this, there is another disadvantage, namely, the cramped state of the other fingers, which cannot free themselves properly from the

string at the time when it is being drawn up for the knot.

Notwithstanding much practice in the art of netting, I feel greatly at a loss how to describe the method of making the knot, in such a manner that it may be easily accomplished by those who have not the opportunity of gaining information by watching others at work.

The mesh being in its place, with the forefinger turned behind it, under the netting, and the needle in the right hand, with the string stretched out, the first part of the operation is to pass the needle round the end of the mesh to the right, laying the string over the second and third fingers, then taking it forward and catching it under the end of the thumb, where it is held whilst the needle passes back again, throwing the string forward on the net already made, *at which instant the left hand should be turned with the knuckles downwards, and the two fingers having string upon them, should be stretched forward under the mesh about to be taken* ; in this position there is an open passage for the needle, which has past round, and is *thrown* through, being caught on the other side : as it passes through, the string

gets on the little finger, and the other two may be withdrawn at once ; therefore on the needle being snatched back, one pull ties the knot, without any sawing or trouble, which always occurs to some extent in the common method. The movement here described cannot be properly effected, unless the netting is laid over a table, or something by which it is held up on a level with the hand, a position much more favourable for speed, than when the net hangs down.

CHAPTER III.

VARIETY OF NETS.

THERE are a great variety of nets used for different purposes ; namely, the Drag-net, Trammel, Cast-net, Eel-net, Drum-net, Cleach-net, &c., for river fishing ; and the Siene, Trawl, Drift, and Dredging-net, &c., for the sea ; also nets for catching birds, which being described in many works, need not be particularized here.

The Drag-net.

Perhaps there is no net more used than the common Drag-net, nor any varying more in the mode of construction ; those sold in London, and in shops generally, are seldom calculated to do much execution, the fault commonly laying in the

gearing or putting together. I have known a net of this description measure fifty-six yards long upon the cork line, with only fifty-four yards of lead line : it was intended to fish more than twelve feet deep ; but upon trial, it was found to be of no use whatever, always rolling up, till, on being hauled out of the water, it looked more like an immense rope, than an instrument for catching fish. This net was afterwards taken to pieces, and regearred, the lead line to the same length, but the cork line was reduced to fifty yards, which made the necessary difference.

It must here be remarked, that those nets which are made with the square, or as it is termed, the French mesh, do not appear to require additional length upon the lead line. This is the method I prefer, having always found the nets answer better, from their working with the meshes more regularly open, and allowing the water to pass through freely.

When nets are made in the common, or diamond method, they will fish well if geared so as to take up, or shorten the net, from one-third to one-half ; that is to say, if when stretched out lengthways they measure sixty yards, they may be geared to forty or thirty, the depth being effected by the mode of gearing. Though in asserting this I strangely disagree with the only author I have

met with on the subject of nets, viz. Mr. Daniel. In his "Rural Sports," he says a Drag-net should be three times as long before gearing, as it is when geared; and also twice as deep before, as it is afterwards; that if this rule is not abided by, the net will not touch the bottom except in the centre, during the operation of hauling—that it will assume the same form as a Trammel always does, when drawn by the cork line in still water. These proportions however are very different from those adopted by our sea-fishermen, who are full as likely to understand the subject as any people.

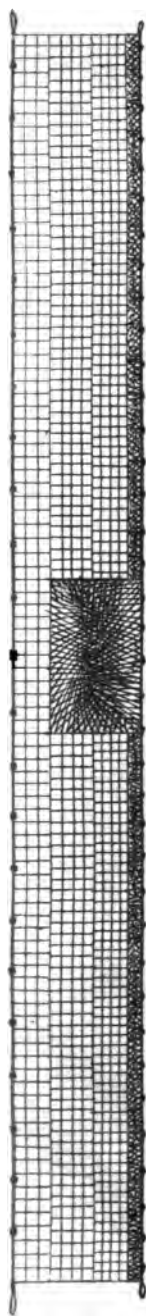
Since opinions vary so widely respecting the proportion to be taken up in gearing a diamond-meshed Drag-net, it is an additional reason why the square mesh should be adopted; these are however much more troublesome to make, particularly when the upper meshes are a size or two larger than the lower ones, which may generally be the case with advantage. I once made a large Drag-net with three sizes of mesh, which worked beautifully: it had an inch and a half mesh three feet from the ground; an inch and three quarters three feet above that; and a two-inch mesh two feet six inches on the top; this mode of constructing them gives lightness; and as few fish when dis-

turbed strike near the surface, there is little danger of losing them from the larger meshes. The operation of sewing these lengths of net together with a gearing needle, is a very tedious one, occupying much time ; which I imagine is the reason they are so seldom constructed as above described. Fig. 8 is an outline of such a net with tucks, or pockets, running from end to end, excepting where the purse is inserted : it will be seen that the purse does not reach quite to the top of the net, this is done under the impression, that there is no advantage gained by carrying it to the cork line ; whereas by being rather lower, a quantity of netting is dispensed with, and during the operation of hauling, the net assumes a better form.

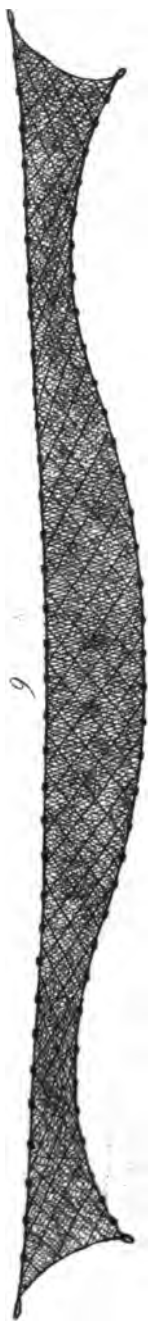
Although the figure represents a net armed with tucks, I am far from recommending the adoption of them in a general way, particularly for river-fishing, where the stream washes them forward, rendering them not only useless, but detrimental to the working of the net, by causing it to roll. In a pond however, there is perhaps no other objection to them, than the increased weight and expense of the net.

When tucks are added, it is necessary to net one or two rows of stronger or double string, at

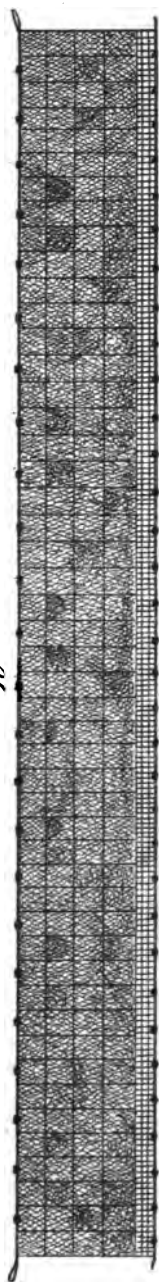
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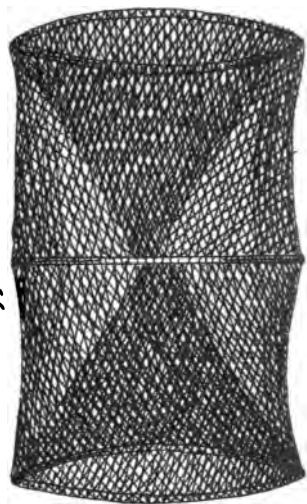
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that part where the suspending strings are to be inserted, otherwise the weight of the lead line will soon tear them out.

Sometimes the purse, which is inserted in the centre of the net, is made with an inner net running nearly to a point, in the same way as the wires of a common mouse-trap ; and hoops are fixed in such a manner as to keep the net open.

Some persons make their Drag-nets in the common diamond-mesh method ; and then after gearing them to the cork and lead line, they attach a square-meshed walling on one side, not quite so deep, as the net would fish without it ; this gives it much the same form when used, as those made all square mesh.

The leads upon a net of this description should be a good size, and placed tolerably near each other ; no rule can be laid down however, either for the size or distance apart, as so much depends upon the nature of the place where the net is likely to be used : it is always advisable to have the leads within a foot of each other, whatever their size may be, by which arrangement the line keeps closer to an uneven bottom.

When a net is overlead ed it will not fish so deep as when the leads are only just sufficiently

heavy to keep it to the bottom ; because the extra force required to give it motion, will cause it to slope forward to a greater extent, dipping the corks some depth under the surface, and causing unnecessary strain upon the top line.

Corks should be cut in such a way as to avoid their being liable to get through, and entangle any part of the net ; they should be well rounded ; and for a Drag-net, it is advisable to have them increase in diameter from each end to the centre, where there should always be one larger than the rest, or two close together, which answer the purpose of showing the situation of the centre of the purse. This it is evident should always be in a position to be quite open for the fish to enter. When an additional piece of net is added, called a wing, which is occasionally necessary, care should be taken during the drawing, to let the large cork be in the bend of the net ; or in other words, it should be the farthest back.

In some parts of the country this description of net is drawn by means of a staff at each end ; these being attached to the cork and lead lines, have a rope fastened at each end, the hauling line being fixed to it, so as to be a little above the middle of the staff. The advantage of this method is, that the lead line is drawn forward, keeping

the net more upright in the water, and in a position less likely to allow a fish to pass under, when it strikes against it ; this is in fact almost equal to a man drawing a net with the lead line fastened to one foot, which he keeps close to the ground all the way he goes ; and can also push into any holes in the bank he may perceive in his progress ; this of course can only be done in brooks and shallow places.

In drawing a net down a river it frequently happens that the banks are high, and if care is not taken, the ends of the net will be lifted up, leaving a clear space for fish to pass under them ; in such cases a boat should be used, with the net fastened to the end of it ; or in the absence of a boat, a fork would be useful, for a person to keep opposite the end of the net, and press the line down to the surface of the water, more fish being lost near the banks than in any other way. In landing a net of this description, the lead line should be drawn forward ; and if the net is not too heavy, one man may pull both ends of it, having one in each hand, the cork line should be laid back right and left, and be drawn ashore regularly with the leads : it is a point of much importance to attend to this part of the operation, which, if properly performed, precludes the possibility of any fish escaping,

except by jumping over, as some few sorts do. When a net is drawn out in this manner, it assumes the shape of a tuck; and any fish striking against it is thrown back and remains in the centre, till the purse arrives, and he is gradually obliged to retire into it.

Some persons who have been in the habit of using Drag-nets with tucks, persist in landing those which are not armed at the bottom in this manner as if they were; the consequence is, when fish strike at the lower part of the net, they lift up the lead line and pass under; or if they remain sulkily, as they frequently do, with their noses in the mud, the net may pass over them without the least endangering their liberty. This may be easily proved by drawing a net on the grass, having a few large round stones in front of it, they will remain quite unmoved; which could not possibly be the case if the lead line were brought forward, as it would be inserted underneath them, before the net itself came in contact. A complaint is sometimes made, that certain nets are given to catching stones; this is a fault I should never think of, knowing they were doing their duty along the bottom. When tucks are used, the case stands very differently as regards landing, and the cork line must come out first.

Although to a casual observer a Drag-net seems a most destructive instrument, it is in many cases very far inferior to a Trammel, which description of net must now be explained.

The Trammel-net.

This species of net is principally intended for the purpose of stalling ; but it is also used with advantage down a stream. I must first however, describe the method of constructing the net ; and then give particulars respecting its application. A Trammel is, as I have stated, generally used for stalling, that any fish striking against it may become entangled in the purse, formed by the small meshes passing through large ones, termed walling. These large meshes are on each side, and should be about a foot square, except when fish run very large, in which case they may be as much as from eighteen inches to two feet, from knot to knot. Large fish require so much loose net to cover them, that they cannot force a sufficient quantity through small sized walling, and having their tails at liberty outside, they are apt to draw back and escape, after which they are extremely shy and difficult to take. If the greater portion of fish to be taken by a particular net should run very small, it would be well to have the mesh of the walling rather less than a foot, but never, under any circumstances, less than nine

inches square. The main point to attend to, in the construction of a Trammel, is the sheeting, or small-meshed net in the centre ; if this is not sufficiently loose and at liberty, large fish can never force themselves through so as to become fast. The proportion I have found to answer is as follows : if a net is intended to fish twenty yards long, it should, when stretched out lengthways (before gearing), measure forty-five yards, or twice and a quarter the length ; and the same rule will hold good for the depth ; that is to say, if the depth required be six feet, it must stretch sideways to a depth of thirteen feet and a half. This proportion however may be exceeded with advantage, when large fish are numerous, as in the sea, or old lakes and pools.

By far the best material for the construction of a Trammel is silk moderately twisted : it is much more durable than common string when kept clean ; and will frequently wear so long as to require a second walling : it is so extremely soft and light, that fish are more easily entangled in it ; being also stronger in proportion to its substance, or thickness, it need not be so heavy ; therefore it has an advantage every way, except in the original cost, which is greater, though more than compensated for by its extra durability.

Where the bottom of any river or pond is very

rough, with stones or impediments of any kind, it is a good plan to attach four or five rows of plain square-meshed netting to the bottom of the net, this being of stronger string, and on the stretch is less liable to catch upon or be torn by anything, and has the effect of holding the walling and sheeting more out of harm's way : it is however rather troublesome in the construction of a net, and therefore seldom attached to any of those made for sale.

The leads of a Trammel should be of such a size, that they may be placed at moderate intervals, varying about the same as the square of the walling : it is also convenient during the operation of gearing a Trammel, to have the corks and leads come always between the parts where it is necessary to tie the walling, which should be done at regular and moderate intervals, not exceeding five inches : the custom of leaving long spaces is decidedly slovenly and bad, producing the annoyance of leads and corks getting through, and becoming fast.

The corks should be regular and of moderate size, nicely rounded, to prevent them from catching upon the loose net.

Previous to gearing a Trammel, I would recommend that a strong string should be run through

the outer meshes from one end to the other, both top and bottom ; then taking a needle and some thin string, count a certain number of meshes, and tie them within the space of as many inches, as may be equal to four-ninths of what they would stretch to lengthwise. Having prepared the whole in this way, the gearing would be much facilitated, no further counting being necessary.

The most common method of fixing the walling, is for it to hang in a diamond form, in which case it is made upon a long mesh, the same form as that represented in Fig. 4 ; the commencement, or setting on of this, is the same as other nets, but the knot is different, in consequence of the large size of the mesh preventing the possibility of a similar method of holding being adopted ; it is however the same as that used in mending nets, when working from right to left, or contrary to the usual way.

To gear a Trammel with diamond-meshed walling, begin by fastening the end of the sheeting to the cork line, have the rope made tight to something that will hold it about a yard from the ground ; then lay the sheeting along under it, and double the walling so as to find its centre, then lay one half along each side of the sheeting ; in this position it is all ready for a start, the corks being spread

along the line. Fasten the centre knot of the walling to the same place as the sheeting, and then take up about six inches of the sheeting, and fasten it to the line ; do the same again, enclosing a cork ; then proceed as before, taking up a mesh of the walling, which should have a loop cast upon it, to prevent it from slipping ; this is done by making a half knot with the needle : one being tied, take the corresponding mesh on the other side of the line, and then bind them tight to the rope ; take care to have the string containing the small net rather loose, that any slight stretching of the rope may not break it ; in passing a cork, this is of more importance than at the plain parts. The same system must be continued to the end.

The top line being done, the leads must next be attached in a similar manner : it is convenient to leave them till the last, on account of their weight making a net more troublesome to move about.

When square-meshed walling is used, there is less trouble in gearing, as it goes regularly along with the sheeting, being tied at short intervals. It may be well here to remark that to make netting square, one mesh must be set on at first, then take that mesh twice, the next row having one added at the end, and so on at the end of each row, till the side measures as much as is required ;

when this is the case, take two meshes at once at the end of the row, and if the net is to be a square one, two must also be taken at the other end, and so on till it is reduced to a point again narrowing at the end of every row ; but if an oblong form is required, as in walling, after a sufficient depth has been obtained, then narrow both sides to a point, and it is finished. Comparatively few nets are made this way, because of the extra trouble in netting the walling ; but there is little doubt existing in the minds of those who have tried both as to the best plan of the two, though few persons can explain the reason why square is preferable to diamond walling.

Some years ago, during my stay in the Isle of Man, I had an opportunity of seeing two large Trammels, each measuring about two hundred yards in length : these lay on the beach drying, and I observed one was square-meshed walling. The owner informed me that it caught one-third more fish than the diamond-walling net ; but he could not account for its superiority. It appears to me that when a fish strikes against a net with diamond walling, the quantity of loose netting required to pass through the walling and form a purse, fills up the bottom angle of the diamond, and causes more resistance than when it passes

over a flat surface, as in square mesh ; in which case the sheeting goes so freely over the bottom part of the square, that fish are entangled before they feel any resistance ; this is of more importance where the fish grow large, as they require a greater quantity of net to cover them. It is a very common thing for large pike to strike a Trammel, and draw back without any difficulty, thereby escaping in consequence of the sheeting checking their progress, before the tail becomes covered or enclosed.

Trammels are found to answer very well, when drawn down a stream, or rather, allowed to float easily with it, the top line being kept gently stretched ; but when they are intended for this purpose, it is desirable to make them rather stronger, and also to have some plain net along the lead line, about five or six inches deep, and square-mesh as before described ; this keeps the sheeting and walling out of the reach of stones, and other accidental impediments, which would otherwise soon wear out the lower part of the net. This strip of net should be of rather smaller mesh, and stronger string than the sheeting.

Trammels are frequently drawn entirely by the top line in still water, in which case they cannot possibly do their duty ; each end tucks, or rises

up, and leaves a great space, through which fish may pass freely ; the form assumed being similar to that represented by Fig. 9, as any person may prove, by walking after a Trammel, when drawn as above mentioned. This evil however may be avoided by having a staff at each end of the Trammel, which should be fastened to the cork and lead line ; and the hauling line should be tied to the middle of the staff, by which means the leads will be kept forward, and the line forced to scrape the bottom.

In all cases where the water is not too deep, it is by far the most effective method to let two persons fasten the ends of the lead line to their feet ; and then, with the cork line across their backs, to walk along close to the banks, pushing the net into all hollow spaces, and forcing the fish out before them ; this I have frequently practised, and found to answer admirably : it is remarkable how the fish will attempt to pass at the ends, when pushed into a small space, just before landing the net, they will try to go between the hauler's legs and the bank.

When Trammels are drawn, which should always be *very slowly*, they may be landed much in the same way as Drag-nets ; the lead line being brought forward, till both ends meet, and the cork

line laid back, right and left, but not on the stretch, which position is apt to cause the fish that are not well meshed to fall out, and gives them a chance of escaping, as they will try if possible to pass under the net during the operation of landing.

There is no way perhaps in which Trammels can be used with more effect than in stalling, or setting them round bushes, where they may be allowed to remain sometime for the fish to get into them whilst moving about ; or persons may go into the water, and drive them from their holds.

There are two ways of landing Trammels after they have been stalled ; one is to draw them end-ways to the bank, taking up the lead line on the side nearest the bush, and holding it even with the corks, by which means such fish as are in the net will hang down in purses, and be quite safe. The other is to take them in at the side of a boat, keeping the position just described ; but one end of the net being fast, the boat advances gradually sideways as the net is taken into it, and the fish extracted. It is sometimes advisable, where large fish are surrounded, to put a second net behind the one to be first landed, which will take any fish that may escape from the first.

Fig. 10, represents a Trammel complete, with

square walling, and plain net at the bottom, square-meshed also ; this addition is sometimes simply a continuation of the sheeting and diamond-meshed, which method saves much trouble, the string in all cases being rather thicker.

The Cast-net.

The Cast-net is very useful for catching baits and other fish, especially in brooks and small pits. They are made according to different rules ; the following however is perhaps as simple and perfect as any of them, and very generally used. The first mesh must be large, and smaller ones used as the net advances, till near where the tuck commences, from which point no diminution should take place.

To form a Cast-net 16 yards round, hang on 79 loops, and then tie, which makes 80 meshes in the circle.

With the first pin go 10 rounds, widening every 4 meshes. With the second pin go 6 rounds, widening every 5 meshes. With the third pin go 6 rounds, widening every 6 meshes. With the fourth pin go 4 rounds, widening every 7 meshes. With the fifth pin go 8 rounds, widening every 5 meshes. With the sixth pin go 8 rounds, widening every 6 meshes. With the seventh pin go 8

rounds, widening every 7 meshes. With the eighth pin go 6 rounds, widening every 8 meshes. With the ninth pin go 4 rounds, widening every 9 meshes. With the tenth pin go 4 rounds, widening every 10 meshes. With the eleventh pin go 2 rounds, widening every 11 meshes. With the twelfth pin go 2 rounds, widening every 6 meshes. With the thirteenth pin go 2 rounds, widening every 7 meshes. (For a net 18 yards round, a fourteenth pin must be used two rounds, widening every 8 meshes.)

Two plain rounds, and then two rounds of stronger string, from which the tuck may be suspended. Fifty-two rounds for the tuck completes the net; this of course may be varied according to circumstances: if the net is to be used for taking large fish, a few extra rounds may be added to the tuck with advantage. The first mesh may be four inches and a half, and each succeeding one a third of an inch less. The leads should be small and nearly round, long ones being liable to become entangled in the net, they should be near to each other, and the tuck suspended at short intervals.

Small-meshed Cast-nets are very useful for catching minnows, and other baits, and are made of strong thread, or (which is much better) of

silk ; this renders them lighter, and at the same time more durable : the same rule may be adopted in their construction, the decreased size of the mesh making the necessary difference in the circumference of the net.

In throwing these nets, care must be taken to avoid all bushes or stumps, as they are easily torn ; and when damaged, it is a troublesome undertaking to rectify them.

Drop-net.

There is another description of net much used for the purpose of catching minnows ; and in many places with success equal to the Cast-net : it is very simple, consisting of a round net geared to a wire hoop, two or three feet in diameter, the net hanging rather hollow in the centre, about six inches below the wire, when held up from the ground ; a small weight is attached to the net, sufficient to ensure its resting upon the ground ; and occasionally pieces of worm are placed upon it to attract the fish : the net is usually constructed of green silk ; and four strings are tied to the wire hoop at equal distances, and connected together about a yard above the net, terminating in one stronger string, which is attached to the end of a stick ; this being done, the net is lowered

into the water, and watched till a number of minnows are observed to pass over it, when it is suddenly snatched up, and all the fish within its range are taken.

The Cleach-net.

This is a net much used during partial floods, when the water is extremely muddy, and more particularly in warm weather, when the fish ramble and get out upon the low-flooded parts of fields, in still corners or eddies, or under hollow banks by the side of rapid streams, where the fish go to be at rest.

These nets are made by first forming a small square, cutting the corner meshes and tying them again to reduce their length, and then tying a string to the centre mesh, commence netting all round; this operation is rather awkward for a few rounds, and requires humouring. Throw in a few stitches at intervals, till it is large enough to gear from nine to twelve feet circumference, when it is fastened to a piece of strong wire, or hoop of wood, which is bent into the form of a half-circle, or rather deeper in proportion to its width; this is held open at the ends by a straight wire, or small rod of iron strong enough to keep the net well stretched out; a pole twelve or fourteen feet long

is fastened to the hoop, one end of it going down to the straight wire.

The net should hang down about three feet six inches, or four feet when geared ; this loose part is laid back on the top of the hoop previous to insertion into the water ; it is then lifted up into a horizontal position, and being pushed forward, is lowered quietly into the water, pressed down to the bottom, and drawn gradually to land. In this manner very fine fish are frequently taken.

The Flew.

This is a large meshed net, used for stalling out from the land, near any part where large fish are supposed to frequent.

A plain piece of net is geared to two light lines, with very small corks and leads, at considerable intervals, just sufficient to keep the net in form : in some instances a stick is used to hold it out, but more commonly a string is thrown across the water, to draw it out as far as it will reach ; and then it is made fast and allowed to remain during the night, and being constructed of very light material, is not perceived by the fish as they swim along, consequently they become entangled and are taken.

Hand-nets.

Hand-nets are of two kinds, and are used for keeping fish alive for a few hours, whilst netting or angling is going on; they are called hand-nets from being used to convey fish from one place to another.

The kind most used is flat, and of a triangular form: they are made by setting on thirty or forty meshes, and netting round for three rows; then throwing in one widening stitch, netting half round, and putting in another mesh; this being repeated every third row *under* the last widening, till the net is wide enough at the bottom to hold a large fish at full length; when it is to be netted up, by taking a mesh alternately from the upper and under side, using a mesh only half the breadth of the one on which the whole net was made.

The second description of net used for keeping fish alive, and carrying them, is made in the form of a bucket. It is commenced by setting on as many meshes as will nearly stretch over the hoops you intend to use, and then putting in a few widenings till the required circumference is gained, then continue to net without any widening, till you have a sufficient depth, (about half a yard, or perhaps two feet); then narrow the net, by taking

two meshes together at four parts of the circle, and every third row till you come to a point, which will form a flat bottom to the net ; three hoops are necessary to keep this sort of net in a good form.

Numbers of fish may be kept alive in these nets without injuring each other, having space to turn themselves round, which they cannot do in the first-named net.

The Hoop, or Drum-net.

The Drum-net, as it is called, from its similarity in form to the instrument of that name, is made by setting on from ten to fifteen meshes, then netting three rows, and widening four times at equal distances, which must be repeated every third row, till the required size is obtained, which is generally about three feet in diameter ; the widening is then discontinued, and the net increased in length, till it will gear about six feet long ; it is then narrowed by taking two meshes together four times in a row, and repeating the operation every third row, till the number of meshes is reduced to the same as at the commencement of the net. Three hoops are then to be fixed outside the net, to stretch it, and they are kept at a distance from each other by three stakes six feet

long being tied to them ; the ends of the net are turned inwards, like a wire mouse-trap, being kept in their proper position by means of a string from each to the opposite end, where they are made fast, the openings not facing each other, but rather cast to different sides.

These nets are usually prepared by the introduction of flowers, pieces of glass, coloured rag, &c. ; and then being weighted, so as to cause them to sink, they are thrown into the water, and allowed to remain during the night. Mr. Daniel, in his " Rural Sports," states, that the introduction of a strange fish into the net, (*i.e.* such a species as the water, where the net is to be placed, does not contain), is the most certain method of catching an abundant supply of fish.

In extensive ponds, or reservoirs, I would suggest the propriety of using this description of net upon a larger scale, substituting straight pieces of wood for hoops, and making the net square at the ends instead of round ; the length perhaps ten or twelve feet, by four or five feet deep and wide ; this might be conveyed in a boat, and lowered in any favourable situation, leaving a cork attached to a strong cord, to show the position, and raise the net. A live and strange fish might be placed near the centre, suspended in a small cage-net, to

attract the fish of all descriptions in the particular sheet of water where it may be placed. A pole placed in a sloping position at the end of the boat, with a roller or pulley at the top, would be useful for hauling up the net when required.

Fig. 11 represents a Drum-net complete.

Eel-nets.

Eel-nets are used after much rain has fallen, when brooks and rivers are swollen and muddy ; particularly during the summer months, and after thunder, when eels run most freely ; they are placed across the stream, and all fish running down are taken in them. The method of constructing them is as follows : a tunnel is first netted, about half an inch mesh, and from a foot to fifteen or eighteen inches diameter, and about four feet long ; at the end of this, one row of double string is netted, after which, net round with single string, taking the inner string of the last meshes ; go three times round, and then narrow by taking two meshes together at equal distances during the circle, reducing the number by four meshes, which repeat every third row, till the opening is only large enough to admit such fish as the water may contain.

The next operation is to net round the outer

mesh of the double row three times, and then widen in four places equally distant from each other, repeating the operation every three rows, using a larger mesh occasionally, and gradually increasing the strength of the string, till the mouth or opening is the required size; then net half a yard without any widenings, and it will be ready for gearing: this description is correct as applied to nets for deep and narrow watercourses; but in situations where the breadth is considerably greater than the depth, it is better to put in two widenings near each other, and then leave a considerable space, putting in two more opposite them, proceeding as in the other case, and taking care to have half a yard of plain netting, after the widening and increased size of meshes have obtained the necessary space of opening.

The net being finished, should have three hoops placed at equal distances, to hold the purse open, and a strong line geared round it, the meshes not being stretched out very wide: if they are an inch and a half square, they should be geared little more than an inch wide, which will give them a good form when the stream comes against them. The next operation is to fasten the two sides of the net where the widenings are nearest together, to two strong stakes, or round pieces of wood,

having rings of iron near the top and bottom, which are to slip down piles on each side of the watercourse, and hold the net in its place.

Fig. 12 represents an Eel-net as described.

These nets are very destructive, taking every thing that comes down the stream. Care must be taken in selecting the spot to have a level bottom; the depth of water should be rather more than the depth of net, to give weeds an opportunity of passing over, instead of being directed into it.

Nets of the above description are preferable to baskets placed just below flood-gates, where fish get much bruised, and soon killed by the great force of water; the net should of course be placed at some distance from any sudden fall, and if possible where the water runs between three and four miles an hour.

CHAPTER IV.

MANUFACTURE OF NETS.

Nets of every description are now made by machinery in London, and sold at a considerably reduced rate; they are however, in many instances, very inferior to such as are made by experienced fishermen.

Trammels and Drag-nets ought to be manufactured by persons having a knowledge of the peculiarities of situation, and sort of fish most abundant where they are to be used, otherwise they may be of little use: for example, where fish run very large, a small-meshed net would not do its duty, more particularly a Trammel. Also where the river or pond is full of obstructions, delicate nets

would not answer ; and nothing can be more desirable than to have them as light as possible, where they are likely to meet with careful treatment, and be used in still water free from sticks and other impediments.

Cast-nets are frequently sold at shops, being represented as much larger than they are in reality ; when this is the case, it is easily discovered by holding the top part of the net up, till the leads are all close together, and just ready to rise from the ground : if the length be seven feet for instance, we know the net cannot be more than fourteen feet diameter, or fourteen yards circumference ; such a net is not unfrequently sold as measuring sixteen, or even eighteen yards.

Leads and corks should also vary in size and distance apart, according to local circumstances.

Leads for a Drag-net should be placed at no greater distance from each other than ten inches ; and it is preferable to have them even nearer, as there is a disadvantage in the use of very large ones placed at considerable intervals of space ; fish are apt to pass under the line at uneven parts of the bottom, whereas smaller leads nearer together, cause the line to run closer to the bottom. Corks should also vary according to the stream and weight of net.

There is no difficulty in casting leads, which may be done at leisure.

The corks may also be cut and bored at home, by which a saving of expense is effected : the knife used in this operation must be thin and flat, and will require a very keen edge to enable it to cut smoothly ; in this respect, much benefit will be experienced by frequently dipping the blade into water, and using it in a wet state.

CHAPTER V.

MENDING NETS.

HAVING explained the method of constructing all the principal nets used in fresh water fishing, I shall endeavour to describe the proper method of mending them, when damaged by stumps or any other impediments. This is a point of great importance, and is very little understood, even by those who are much in the habit of using nets.

For the purpose of mending, a short needle should be employed, filled with string the same substance as that of which the net is made, or if one degree finer perhaps all the better, because being new it will last as long, and the patch will be less perceived ; the old meshes which are cut

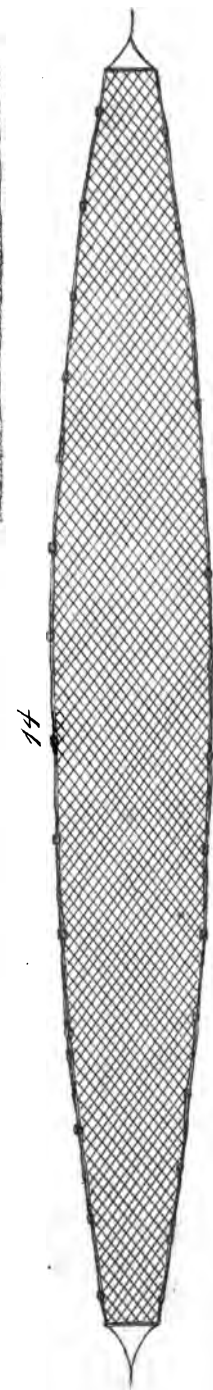
off, leaving short ends, and a knot to be taken up in forming the new mesh, will be less contracted by the operation.

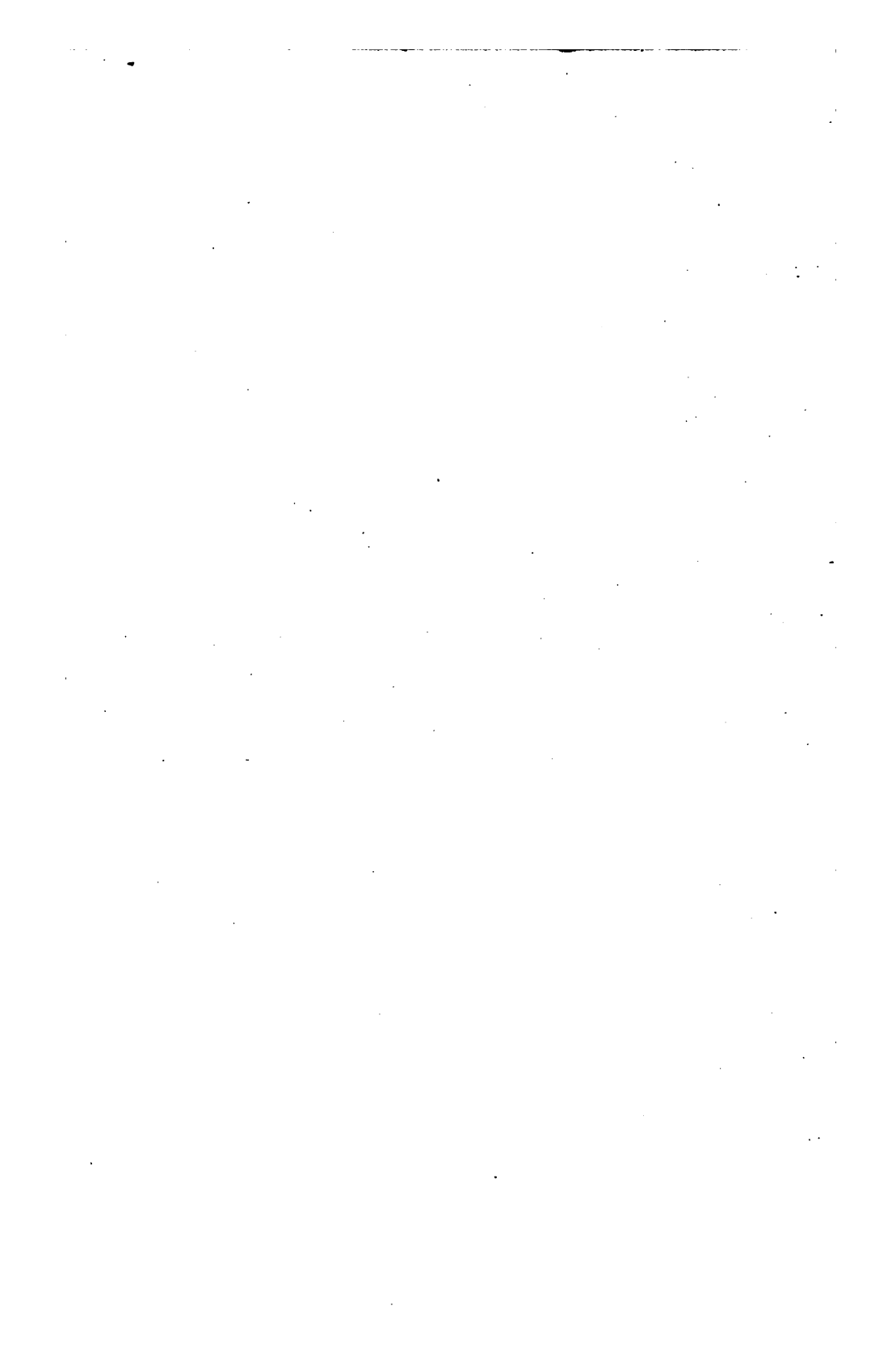
The first thing to be done in mending is to examine the opening, and cut it in a regular form according to circumstances, not taking away any unnecessary quantity of meshes, only such as are likely to interrupt the operation of netting up, and cause more knots or joints than necessary; these should be reduced to as small a number as possible, and when a hole is cut to a proper form, there will only be a tying at the beginning and finishing of the job.

By referring to Fig. 13, the system will be evident. No mesh will be required, excepting when large spaces are to be filled up, in which case the use of a mesh will facilitate the operation.

The method of netting without a mesh is as follows: commence by passing the needle through the mesh to be taken, then take hold of the string and measure to the second knot, that is to say two spaces, allowing a little over; bring the string down with the thumb and finger to the bottom of the mesh on which the knot is to be tied, and as you do so, insert the little finger of the left hand into the newly-formed loop to keep it tight, by

these means the true measure is kept ; then proceed by passing the string with the needle across to the left, placing the thumb upon it again, which must be done before the string is slackened ; bring the needle round to the right, pass it under the mesh through which you have past the string, then draw it out, and pull the knot tight. This operation is repeated backwards and forwards, till the hole is filled up, finishing at the bottom by taking the upper and under meshes alternately. In netting from right to left upon the fingers, the second must be introduced instead of the little one, to keep the mesh tight.





CHAPTER VI.

SEA NETS.

THE Siene is a species of Drag-net generally used in the sea, the length of which varies according to the particular sorts of fishing in which it is used. From forty to four hundred yards, and occasionally for mackerel in deep and extensive bays, as much as six hundred yards long. The depth of a Siene would be twenty feet in the bunt or centre, for seventy yards in length, or averaging about that, and six feet in the arms at the pole staff or ends ; but the depth varies according to the nature of the places where they are used.

In fixing the net, the leaves, or short portions in which it is usually made, should be put in so as

to stand upright. Three or four leaves may be put in the same length, and then the next reduced two feet, or one foot and a half in length, or more properly in depth of the whole net, or every one from the centre may be reduced if preferred. The size of the mesh varies from the bunt or centre, getting larger at every three or four leaves: mackerel Sienes beginning at the bunt with three quarters of an inch mesh, and ending at the arms with a two-inch mesh, or two and a half inches.

Pilchard Sienes are generally made with a half an inch mesh at the bunt, increasing to an inch and a half or two inches. Sienes intended to take flat fish are made very shallow, and have large meshes.

The string of which Sienes are made is formed of double strand, or two parts laid up together, and of considerable substance. The cork and lead lines of Sienes are double, that is to say two lines put together, which when they were made were twisted different ways, left hand rope and right hand rope, to prevent them from rolling up, or kinking, as it is sometimes termed. In gearing, or fixing a Siene, about one fourth of the net should be gathered or taken up; or in Salmon-meshed net, one mesh in three should be gathered to the ropes, the head and foot line always the

same. The corks should be nearly four feet apart, and about four inches in diameter. The leads about one-fifth of a pound weight, and eight or ten feet apart. Small Sienes have lighter leads, and flat fish Sienes the same leads six feet apart.

Sienes have pole-staves at the end of the arms rather shorter than the spread of the net, with a span rope, as shown in Fig. 14, which represents a Siene.

There is a Siene at Torquay, in Devonshire, six hundred yards long, and about fifty-five feet deep in the bunt. When this can be got round a school of mackerel, they are sure to be taken, the arms of the net extending so far before them.

An immense school of mackerel was enclosed at Babbicombe with this net, and could not be drawn ashore, therefore a small Siene was shot inside the large one every day for nearly three weeks, taking out thousands each time, till an easterly wind came on, and rendered it necessary to haul the great Siene into a boat. The owners of the net gained some hundred pounds. On the coast of Cornwall however, even greater quantities are sometimes taken.

Drift-nets for Mackerel, or Herrings, or Pilchards, are made the same depth and the same

sized mesh all throughout. Herring-nets about eighteen feet deep, with meshes three quarters of an inch square, or the size of a shilling. Mackerel nets a quarter of an inch larger, and of stouter twine. Pilchard-nets under three-quarter's scale, of stout twine and very deep. Herring-nets in the Isle of Man and Ireland, and some parts of Scotland, are made fifty or sixty feet deep, of stout twine well tarred.

In making, or rather gearing, a herring-net, or any drift-net, one-third of its length should be taken up or gathered, and of course the net may be worked any length without being joined.

All drift-nets are very lightly leaded, but rather closely corked. The manner of using herring-nets, or any drift-nets is as follows. They are shot out in a straight line some distance off the land, and the fish swimming about during the night become entangled in the meshes, being caught by the gills. In the morning the nets are hauled into a boat, and the fish taken out. Rather less than a third of the length should be taken up in gearing these nets to the top and bottom lines. In Devonshire they are made from four to six hundred yards long. In the Isle of Man, Scotland, and Ireland, they are used a thousand, fourteen hundred, and even as much as sixteen hundred yards long.

Tuck-nets are also used for catching mackerel and pilchards, they are of great length and depth, the same depth throughout ; they are shot round a shoal of fish a long way off the land, and the net is gradually drawn into a small compass, when the fish are taken out with small scoop-nets made for the purpose.

A **Trawl** is that species of net which is used for ground fish a considerable distance from the land ; and is dragged or towed at the rate of about two and a half, or three miles an hour. It is made with a wide mouth, running back to a point with a purse, as in Fig. 15. The mouth is spread by a beam, called a **Trawl-beam**, and kept up by two irons, one at each end, to which it is fixed, and which slide along upon the ground. There is a strong rope to which the under part of the net is joined ; this being fixed to the bottom of the irons runs back in a semicircle. From each iron there is a rope, the two being joined together at some distance from the net, whence a single rope leads up to the vessel, as shown in Fig. 15. The bottom of the **Trawl-net** being fixed to the semicircular rope, scrapes the ground and takes any fish between the **Trawl** heads or irons. The net is dragged by the vessel about four hours at a time. In the neighbourhood of Liverpool, small shrimp-

trawls are used on the same plan as the others. There are also nets which are moored to points of rocks for catching Pollock, Salmon, Peel, &c. : these are shot out from the rocks and kept afloat by buoys ; they are made and hang like drift-nets in the water ; the fish mesh, or entangle themselves, in the same manner.

The Hastings, Brighton, Folkestone, and other east county boats go down the Channel in the spring and summer to catch mackerel with their drift-nets ; they fish off Plymouth, round the Edystone Lighthouse, &c. : the boats average about eighteen or twenty tons burthen ; the nets are very long, some being one mile and a quarter, but not more than from twelve to sixteen feet deep. There sometimes are as many as a hundred and sixty of these boats at Plymouth at once.

Dredging-nets are used for taking oysters, shells, &c. : they are made like Trawls, but have a flat piece of iron across the mouth to scrape the ground, instead of the semicircular rope.

